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ABSTRACT

Active and creative recruitment is necessary to compensate for the fact that minority group students may be disinclined to seek higher education. One such recruitment activity involves providing on-campus precollege experiences during which students can become familiar with college life, begin career exploration, and develop positive attitudes toward college. The research described in this paper focused on developing an evaluation procedure to measure such attitudes. One particular recruitment activity, the Youthsummer program at the University of Wisconsin-Superior was studied. In the first phase of the study, the Attitudes Toward College Inventory (ATCI) was developed as a twelve-item instrument, employing five-option Likert items. The student population consisted of 108 minority and disadvantaged youth who participated in a two-week Youthsummer program in 1981. In addition to the twelve items of the ATCI, a number of other questions were included on the form administered at the beginning and end of the program. A follow-up questionnaire was sent to the 47 participants ten months after the program. In phase two, the ATCI was expanded to thirty items and administered to participants in the 1982 Youthsummer program. Results show that the ATCI is a reliable, valid, and easily administered indicator of high school students' attitudes toward attending college. Appended to the paper is a sample of the instrument. (AOS)

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Attitude Assessment and Prediction of College Attendance Among Minority and Disadvantaged Students

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Minority and disadvantaged students are likely to face a number of obstacles in making a decision to attend college. They may lack appropriate role models (friends, relatives, teachers, etc.) who have attended college. They may have financial problems which lead them to believe that tuition and expenses are beyond their means. They may have academic deficiencies and/or doubts about their capacity to do college level work. For whatever combination of these and other reasons, they may not have given any real consideration to the possibility of pursuing higher education.

A commitment to providing equal higher educational opportunities to minority and disadvantaged students requires more than non-discriminatory university admissions procedures. Active and creative recruitment is necessary to compensate for the fact that these students may be disinclined to seek higher education. One promising category of such recruitment activities involves providing on-campus precollege experiences during which students can become familiar with college life, begin career exploration, and develop positive attitudes toward college.

The question of whether such activities increase the likelihood that minority and disadvantaged students will pursue college attendance deserves further attention. The present study focused on developing an evaluation procedure to use in answering this question. One particular recruitment activity, the Youthsummer program at the University of Wisconsin-Superior was studied.

In order to assess attitudes toward college, an appropriate measurement instrument was needed. A review of Buros' Eighth Mental Measurement Yearbook

and a computer bibliographic search of ERIC Resourses in Education and Current Index to Journals in Education yielded no such instrument. Instruments are available which assess students' current attitudes toward school for students from elementary through college ages. But none of these attempt to predict future inclinations to continue schooling.

Similarly, there is an extensive body of research which studies the relationships between college attendance and various cognitive and demographic variables. Baird (1976) summarizes:

> College attendance is related to a great variety of things.... However, most of the research on college attendance has been concerned with two determinants: intelligence and social class. The higher the student stands on either of these variables, the more likely is he or she to attend college (p. 25).

For example, a study of data from the National Longitudinal Study of the High School Class of 1972, Pepin and Korb (1979), found that aptitude and grade point average were good predictors of college attendance but race (without aptitude scores), self concept and locus of control were not.

Thomas (1977) found a slightly different picture when she studied the effects of race and sex on college attendance using National Center for Educational Statistics data. Among her conclusions were that race differences were more important than sex differences and that in the final equations, educational expectation was the best predictor of college attendance for both blacks and whites. This finding and the need to evaluate the effectiveness of programs like Youthsummer demonstrated the need for an instrument measuring educational expectations, what we call attitudes toward college. Consequently, a major portion of the work of

this research was the development of an attitude questionnaire, the Attitudes Toward College Inventory (ATCI). Questions concerning the reliability and validity of the ATCI thus became preliminary to the question of the effectiveness of the Youthsummer program and other similar programs in improving the attitudes toward college attendance of minority and disadvantaged students.

METHOD

Study 1 - Youthsummer.81

Subjects in this study consisted of 108 minority and disadvantaged youth who participated in a two-week Youthsummer.81 program at the University of Wisconsin-Superior. These students received financial assistance through funds secured from the National Science Foundation, the Environmental Protection Agency Water Quality Laboratory (Duluth, Minnesota) and the Northwest Concentrated Employment Program (Ashland, Wisconsin). For 28 of the youth, Youthsummer was part of an eight-week science program.

Ninety-seven of the Youthsummer.81 students participated in Study 1. Sex and age data are missing for 22 or these. For the remaining 75 students, the ages ranged from 14 to 19 years with a mean of 16.5 years. There were 34 male and 41 female participants. All met the requirements of their supporting grant as minority and/or disadvantaged students.

The Attitudes Toward College Inventory (ATCI) was initially developed as a twelve-item instrument employing five-option Likert items. Seven of these were worded positively (strongly agree indicating a favorable attitude toward college) and five were worded negatively (strongly disagree indicating a favorable attitude). Participants completed the ATCI at the end of the first day of classes and again prior to the last day of classes. The interval between these two questionnaire completion times was ten days.

The students were aware that the Youthsummer program was being paid for through several grants. As a justification for completing the ATCI, they were told that one of the grants provided for studying participants' feelings about the experience.

In addition to the twelve items of the ATCI, a number of other questions were included on the form administered at the beginning and end of the two week program. The pretest questionnaire included questions related to interest in attending college, ability to afford college, perception of difficulty of college work, perceived intelligence, career plans, and status in and intention to complete high school. The posttest form included all of these plus questions related to high school grade point average, mother's and father's education, siblings or friends with college experience, and evaluative reactions to the Youthsummer.81 program. Ninety-four students completed the pretest; 75 completed the posttest; 72 of these completed both (three of the posttest subjects had been absent during pretesting).

Ten months after the Youthsummer.81 program, in May of 1982, a followup questionnaire was sent to the 47 participants who were high school juniors or seniors at the time of their program participation. This questionnaire consisted of the twelve-item ATCI and two questions regarding high school graduation and college attendance plans. Completed questionnaires were returned by 22 of these. Phone calls were attempted to all non-respondents. We were thus able to obtain responses to the two questions regarding high school graduation and college attendance for 42 of the 47 students.

Study 2 - Youthsummer.82

In June, 1982, the ATCI was expanded to thirty items. The revised

version is included as Appendix A. It was then administered to 68 students, grades 9 and above, from the Youthsummer.82 program. Approximately one-third of these students received tuition support and were identified as disadvantaged. The remainder paid tuition for the Youthsummer.82 program. Fifty students identified themselves as White, two as Black, fourteen as Native American, and two as Asian. There were thirty-eight males and twenty-two females (eight students failed to complete the item on gender). Their ages ranged from thirteen to nineteen years with a mean of 15.9 years. Data from this population was used only for determining the reliability of the revised ATCI.

RESULTS

Study 1 - Youthsummer.81[1]

ATCI scores. Internal consistency analyses on the pretest ATCI items yielded a Cronbach's alpha of .680 (N=69); for the posttest ATCI items, Cronbach's alpha was .682 (N=70). An ATCI score was formed for each student by averaging the items which s/he answered. (Negative items were reversed before averaging.) On the pretest and posttest combined, all but ten students answered all 12 items. Nine of these ten students left one item blank while one student left two items blank. Using the mean of items answered for these students produced an ATCI score which varied between one and five just as the individual Likert items had.

An estimate of the test-retest reliability is given by the correlation between pretest and posttest ATCI scores, which was .627 (N=72). This correlation is based on an interval of 10 days between the two administra-

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[1]Unless otherwise noted, the sample size for pretest data was 94, and for the posttest data, 75.

tions of the ATCI.

The mean of the students' pretest ATCI scores was 3.74. For those students completing the posttest questionnaire, this mean was 3.84. On the average, then, students held positive attitudes toward college. (Three is the neutral point on the five-point scale.)

For those 72 students who completed the ATCI both before and after Youthsummer.81, a t-test was performed to determine the significance of changes in attitude. The posttest ATCI scores for these 72 students, mean=3.84, were significantly higher than the pretest ATCI scores, mean=3.75 (t_{71}=2.16, p=.034).[2] There were no significant differences on pretest ATCI scores between the original 94 students and the 72 who completed the posttest questionnaire. In other words, students who dropped out of the study did not differ on attitudes toward college from those who completed the posstest questionnaire.

Other questionnaire data. Concurrent validity of the ATCI is demonstrated by its relationship to other information collected on the pretest and posttest questionnaires.[3] Students rated their college interest on a five-point scale ranging from "I have no interest in attending college" to "I would very much like to attend college." College interest correlated .499 (p=.00002) with the ATCI.

ATCI scores were also related to the students' answers to a question on how likely it was that they could afford college, r=.288 (p=.005). However, ATCI scores on the posttest were not significantly related to the

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[2]All significance levels reported are two-tailed.

[3]In this section, pretest ATCI scores were used because they represented student attitudes as they existed before intervention began. Unless otherwise noted, however, the same results were found when posttest ATCI scores were used.

affordability question (r=.181, p=.12). ATCI scores correlated significantly with perceived difficulty of college, i.e., the students' assessment of how difficult they felt college would be for themselves (r=.387, p=.00012), and with the students' assessments of their own intelligence (r=.271, p=.008). The perceived intelligence-ATCI correlation was not significant for the posttest (r=.210, p=.07).

We tested the importance of ATCI scores in the prediction of students' college interest. ATCI scores and six self-reported biographic variables--mother's and father's education, affordability of college, perceived difficulty of college, students' perceived intelligence, and estimated GPA--were used as predictor variables in a hierarchical multiple regression with the ATCI entered last. ATCI scores contributed significantly to the prediction of college interest beyond the biographical variables ($F_{1,47}$=16.87, p=.001).

No biographical variable had a significant weight in the final regression equation; one biographical variable, perceived difficulty, significantly predicted college interest in the first regression equation when only the biographical variables were used as predictors ($F_{1,47}$=4.82, p=.033).

Follow-up of Youthsummer.81. Information on college attendance plans (planning to attend, not planning to attend, or undecided) was received from 43 of the 48 students in the follow-up sample, 37 of whom had completed the posttest questionnaire at the completion of Youthsummber.81. For these 37 students, posttest ATCI scores correlated .415 with college attendance plans (p=.01). The group of 16 students who were not planning to attend college had a posttest ATCI mean of 3.73 while the 17 students who planned to attend had a mean of 4.05 (t_{31}=2.60, p=.014). The remaining four students were undecided.

Again, a hierarchial multiple regression was performed with college attendance plans as the dependant variable. The same biographical variables and ATCI scores were predictors. This time, perceived difficulty, perceived intelligence, and affordability were taken from the posttest questionnaire, and presumably included any changes in assessment due to Youthsummer.81. None of the biographic variables significantly predicted college attendance plans. Only ATCI scores significantly predicted college attendance ($F_{1,22}=4.64$, $p=.042$).

Study 2 - Youthsummer.82

For the 30-item final version of the ATCI, Cronbach's alpha was .864 (N=64). Again, an ATCI score was computed for each student by averaging the items s/he had answered. Four students answered 29 of the 30 items; the remaining 64 answered all 30 items. In this new sample, ATCI scores still correlated significantly with college interest, $r=.554$ ($N=67$, $p=.00002$).

DISCUSSION AND CONCLUSION

Reliability is a necessary characteristic of any measuring instrument. The twelve-item ATCI yielded respectable reliabilities of .68 (internal consistency) and .63 (test-retest, ten-day interval). The thirty-item ATCI displayed a much higher reliability of .86 (internal consistency). This suggests that the revised ATCI provides a good measurement of students' attitudes toward college.

The second major finding is that concurrent validity was demonstrated for the ATCI by the significant positive correlation ($r=.50$) with students' self-ratings of their interest in attending college. The follow-up study yielded even stronger evidence of the instrument's validity. All students who were graduating seniors or college age as of May, 1982 (ten months

after their Youthsummer experience) were contacted. It was possible at that time to get a strong indication of these students' intentions to pursue college. When this response was used as the independent variable in a regression equation, the ATCI was the only significant prediction variable. No combination of the biographical variables available was significant at predicting college attendance. The ATCI then is a potentially useful instrument for indicating the likelihood that high school students will attend college.

The third major finding is that attitudes toward college, as measured by the ATCI, are manipulable. Mean scores at the end of the Youthsummer.81 program were significantly higher than at the beginning. This suggests that this program was influential in improving the attitudes toward college of the participants. In conjunction with the finding of the predictive validity, it seems reasonable to conclude that the two-week experience increased the likelihood that these minority and disadvantaged youths would attend college. Related to this is a particularly provocative finding. Attitudes toward college were significantly correlated to students' family income and perceived intelligence prior to their Youthsummer participation. This is consistent with the findings reviewed by Baird (1976) and cited earlier. However, these two correlations were no longer significant after the students had participated in the two-week Youthsummer program.

It should be noted that this last finding is based on data using the shorter, original version of the ATCI. Since the revised version has a greater reliability and contains all of the original items, it is assumed that these conclusions hold for it also.

This is one question, however, which deserves further attention. Several others will be noted here. A controlled study including a group

of similar students receiving no intervention should be conducted. Longitutinal studies of the durability of improved attitudes toward college would also be helpful. We do not know, for example, whether improving the attitudes of ninth and tenth graders will be of lasting effect, making them more likely to enter college two or three years later. Finally, it may be possible to establish probabilities of college attendance for various ATCI scores. This would make it possible to use the instrument to identify individual students who were either very likely or very unlikely to attend college.

In summary, the ATCI is a reliable, valid, and easily administered indicator of high school students' attitudes toward attending college. It can be used in studies of programs intended to improve such attitudes, thereby making participants more inclined to attend college. And it can be used in further studies of variables affecting students' decisions to enter college.

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NAME _____ Age _____ Sex _____

Race: 1. ____ White 4. ____ Oriental
2. ____ Black 5. ____ Spanish
3. ____ American Indian 6. ____ Other

What is the last grade you completed in school? _____

Do you plan to graduate from high school? Yes____ No____ Undecided ____

I already have ____

Note: The word college is used to mean two or four year schools that offer asscciate or bachelor's degrees.

I. Thirty sentences are listed below. Please decide whether you agree or disagree with each one. Then circle the number 5 if the sentence is one you agree with a great deal; circle 4 if you agree somewhat; circle 3 if you are uncertain or undecided about the sentence; circle 2 if you disagree with the statement; and circle 1 if you very strongly disagree.

Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
1	2	3	4	5	1.	College teachers are friendly people
1	2	3	4	5	2.	Too often, I have gotten school grades that were lower than I deserved.
1	2	3	4	5	3.	My teachers would probably think of me as basically a good student.
1	2	3	4	5	4.	My friends think college is a waste of time.
1	2	3	4	5	5.	I have a lot of respect for college students.
1	2	3	4	5	6.	I would rather have a job than stay in school.
1	2	3	4	5	7.	Subjects taught at college have no relation to real life.
1	2	3	4	5	8.	I like to try to complete my school work as well as I can.
1	2	3	4	5	9.	How I do in school is important to my parents.
1	2	3	4	5	10.	I do better at things I do outside of school than I do in school.
1	2	3	4	5	11.	People who go to college are snobs.
1	2	3	4	5	12.	It's important to me to get a good education.

I. Continued.

Strongly disagree	Disagree	Undecided	Agree	Strongly agree		
1	2	3	4	5	13.	College students have a good time.
1	2	3	4	5	14.	A college education is necessary to be a success in today's world.
1	2	3	4	5	15.	I would never skip school to go to a movie or to be with my friends.
1	2	3	4	5	16.	If I went to college, I think I would feel accepted there.
1	2	3	4	5	17.	Going to college classes every day would be boring.
1	2	3	4	5	18.	Most jobs I've thought of having would require a college education.
1	2	3	4	5	19.	It's OK to miss school just because I don't feel like going.
1	2	3	4	5	20.	Studying is enjoyable sometimes.
1	2	3	4	5	21.	I think going to college would tie me down too much.
1	2	3	4	5	22.	Colleges are impersonal places.
1	2	3	4	5	23.	Getting a college degree is a good thing for me to do.
1	2	3	4	5	24.	I only do what is required in my classes--never more.
1	2	3	4	5	25.	I'm more likely to get the kind of job I'd like with a college education.
1	2	3	4	5	26.	When school is over for the day, I am glad to get out and do something fun.
1	2	3	4	5	27.	I enjoy going to school.
1	2	3	4	5	28.	If I have children some day, I will want them to go to college.
1	2	3	4	5	29.	I enjoy reading about new subjects in my spare time.
1	2	3	4	5	30.	There is no reason for some classes to be required--students should be allowed to choose what to study.

II. For each set of five sentences below, circle the letter of the sentence that you agree with most.

1. a. I have no interest in attending college.
   b. I don't think I would like to attend college.
   c. I'm undecided about attending college.
   d. I think I would like to attend college.
   e. I would very much like to attend college.

2. a. I'm sure I can afford to attend college.
   b. I probably can afford to attend college.
   c. I don't know whether I can afford to attend college.
   d. I probably can't afford to attend college.
   e. I'm sure I can't afford to attend college.

3. a. I know college classes would be too hard for me.
   b. I think college classes would be hard for me.
   c. I'm not sure How well I would do in college.
   d. I don't think college classes would be hard for me.
   e. I know I can do good work in college.

4. a. I am one of the smartest students in my school.
   b. I'm smarter than the average student in my school.
   c. I'm about as smart as the average student in my school.
   d. I am not as smart as the average student in my school.
   e. Almost all of the students in my school are smarter than I am.